### EBnet Prototyping

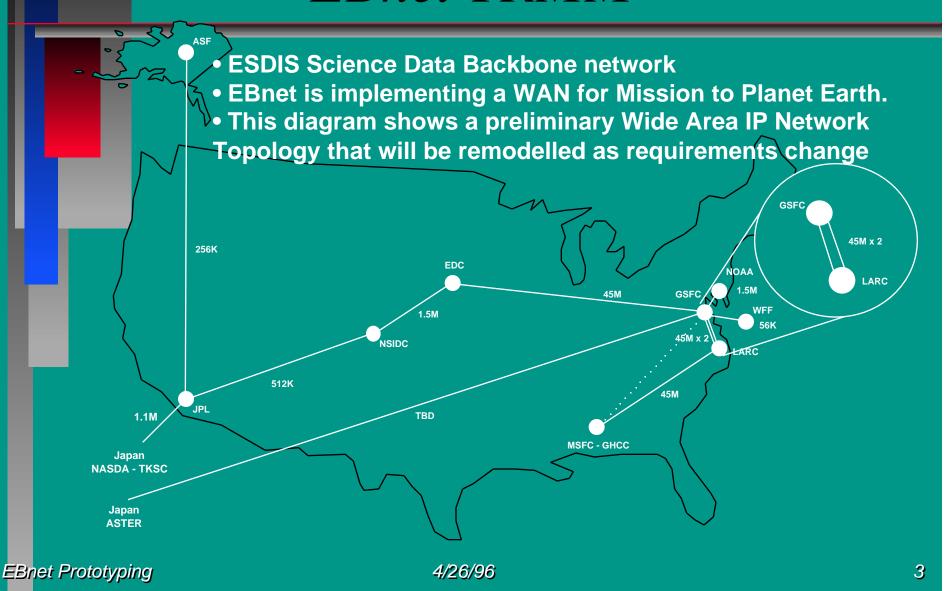
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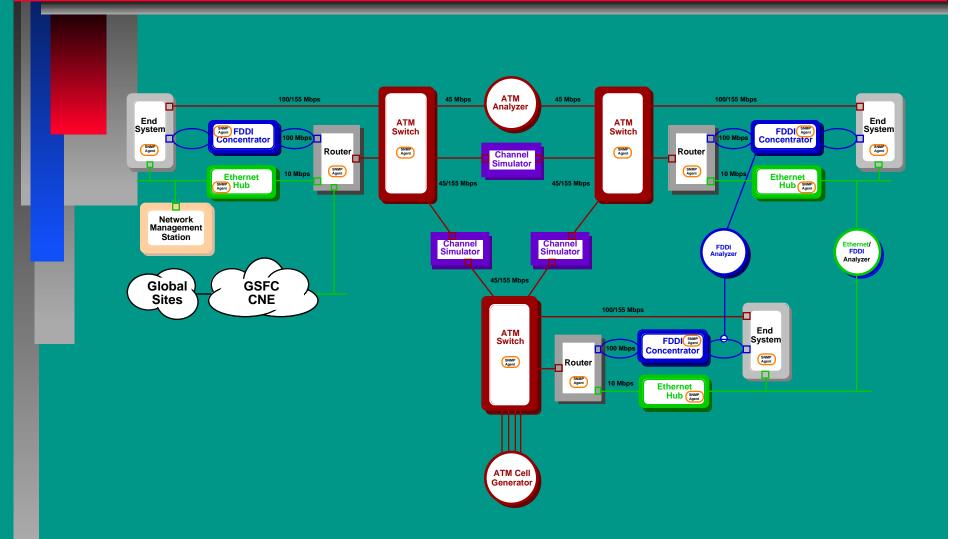
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#### EBnet TRMM



## Nascom Internetworking Lab Environment (NILE)



### NILE Objectives

- Prototype and test equipment for converting legacy systems
- Prototype an approach for migrating customer's traffic to an ATM backbone
- Prototype IP network to support EOS

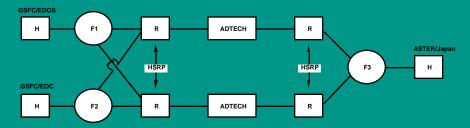


- Hot Standby Routing Protocol
- Link Access Protocol Balanced
- TCP Over Satellite
- Functional and Performance Testing
- System Integration

## Hot Standby Routing Protocol

#### Purpose

 to show that the following configuration will support the 1 minute MTTRS requirement for the Realtime Network.



#### Procedure

- Enable HSRP on Cisco routers. Configure one router as Primary and one as a hot standby router
- Using W&G analyzer, generate and monitor traffic flow
- Fail different components of the setup and observe time of recovery and data loss (if any)

#### Conclusion

 Rerouting occurred with 3 to 10 seconds of data loss depending on the kind of failure.

### Current TCP Testing

- Current testing is exploring:
  - Large Windows
- TCP over ATM
- Other tests as requested

# ATM Switch and ATM Service Testing

#### Purpose

Examine ATM switching and commercial service technologies

Examine issues associated with carrying operational traffic over an ATM WAN:

- traffic management (congestion control, policing, and allocating resources to maximize bandwidth efficiency)
- prioritization (to ensure operational traffic receives priority over e-mail, for example)
- network management (SNMP, SVCs)
- delay (low and bounded)
- reliability and availability

## ATM Priority Tests

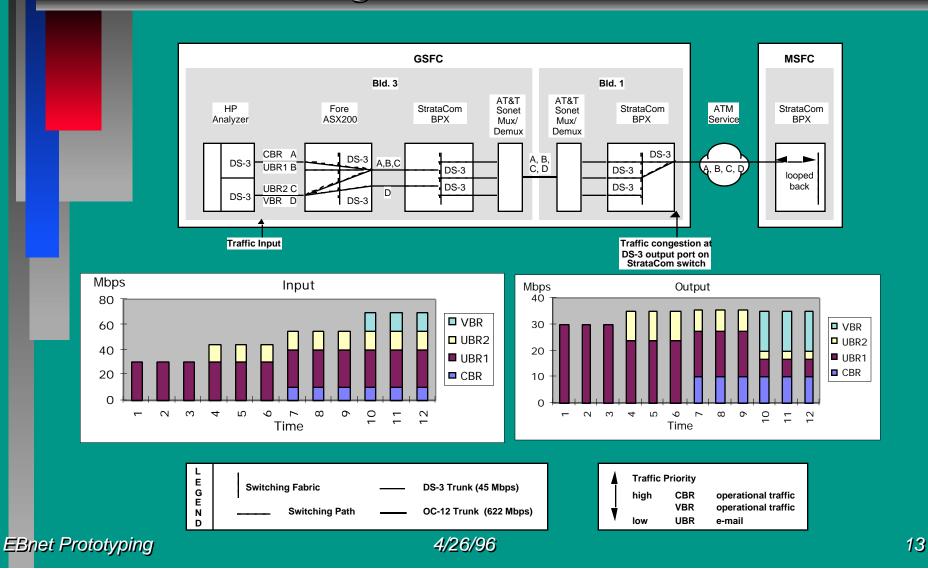
#### **Purpose**

To demonstrate that traffic can be prioritized over ATM

#### **Procedure**

 VCs with different priorities are created on ATM switches. HP Analyzer sources and sinks data for these VCs. We monitor the VCs to see which traffic is prioritized.

#### Test Setup to Demonstrate Traffic Policing in an ATM Network



## ATM Testing Plans (Future)

TCP, Voice, Video, and other application performance in end-to-end configurations

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Transitioning EBnet to use ATM technology

## Network Management

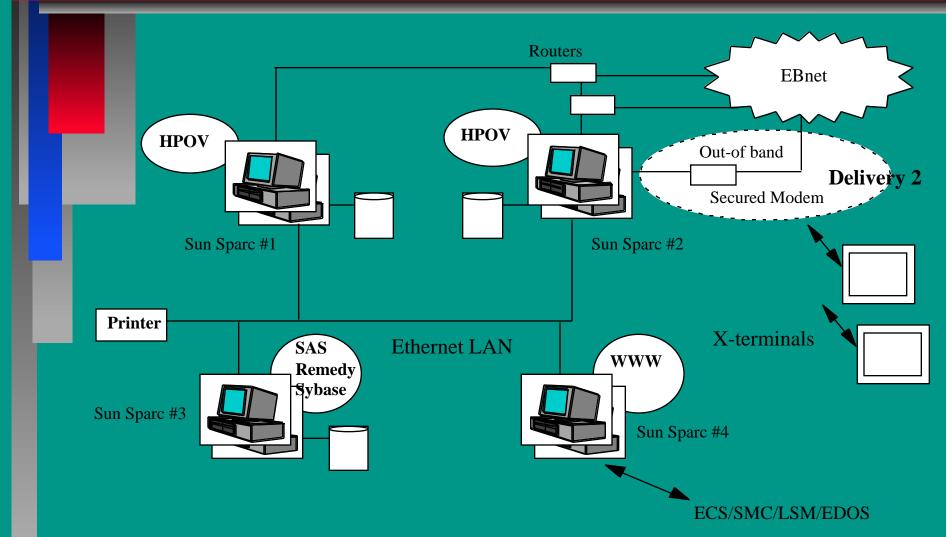
## Purpose

Nascom's ATM/IP
Networks

GSFC NOC

- Maximize the use of COTS tools for a:
  - Standards based Network Manager
  - Structured and automated Help-Desk
  - Real and non-real time reporting
  - Remote management
- A Proactive Network Management System coupled with a well-defined operations concept and a phased system development approach will reduce implementation and operations cost

# EBnet TRMM NMS' Configuration



**EBnet Prototyping** 

4/26/96

# EBnet TRMM NMS Overview Delivery 1

- HP Open View Network Node Manager Remedy Action Request System (Trouble ticketing)
- Sybase System 10 (Relational database management system with SQL)
- Statistical Analysis System (SAS) (Report generation and performance analysis)
- CERN http server (Information dissemination via WWW)

#### Conclusion

- NILE testing activities have evaluated many COTS technologies for their feasibility in the EBnet environment
- Modeling will be used for both R/M/A prediction (ARAM) and topology cost estimates (WinMind)
- NILE provides a test bed for EBnet development and prototyping
- Future testing activities will examine emerging technologies and applications